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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/630,319

07/30/2003

Henry A. Blauvelt

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7590

08/19/2004

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EXAMINER

MENEFEE, JAMES A

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 08/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/630,319	<b>Applicant(s)</b> BLAUVELT ET AL.	
	<b>Examiner</b> James A. Menefee	<b>Art Unit</b> 2828	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37-41 is/are allowed.
- 6) ☒ Claim(s) 1-18 and 26-36 is/are rejected.
- 7) ☒ Claim(s) 19-25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-18, 26-36 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-241 of copending Application No. 10/187,030 (see US 2003/0081902, cited herein) in view of either Bradley or Liu (discussed below in the 102 and 103 rejections).

The claims of '030 appear to disclose the waveguides of the present invention, particularly the transverse transfer coupling features, but do not disclose the optical device as a laser. It would have been obvious to one skilled in the art to apply the laser and grating of either Bradley or Liu as the device of '030 in order to provide a tunable laser apparatus, as taught by Bradley or Liu.

This is a provisional obviousness-type double patenting rejection because '030 has not been patented.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Bradley (US 5,123,070). See Fig. 1 and the discussion thereof.

Regarding claim 1, Bradley discloses a laser comprising a laser gain medium 10 having first and second end faces, a low index optical waveguide 12 integrated with the laser gain medium on a substrate 2 and end coupled at the first end face of the laser gain medium, and a waveguide grating segment 28 optically coupled to the laser through the waveguide 12 and providing feedback to the laser to support oscillation in at least one mode.

Regarding claim 6, second face 13 of the gain medium is reflective, and thus provides optical feedback to support lasing in at least one mode.

Claims 1-2, 6-10, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Liu et al. (US 2002/0197013). See particularly Fig. 8 and the discussion unless otherwise noted.

Regarding claim 1, Liu discloses a laser comprising a laser gain medium 821 having first and second end faces, a low index optical waveguide 805 integrated with the laser gain medium on a substrate 809 and end coupled at the first end face of the laser gain medium, and a

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waveguide grating segment 813A optically coupled to the laser through the waveguide and providing feedback to the laser to support oscillation in at least one mode.

Regarding claim 2, grating 813A forms a portion of waveguide 805.

Regarding claim 6, as shown in Fig. 7, second face 723 of the gain medium may be partially reflective, and thus provide optical feedback to support lasing in at least one mode.

Regarding claims 7-8, a second waveguide (to the left of 821 in Fig. 8) may be optically coupled to the gain medium at the second end face, similarly end coupled and integrated like the first waveguide.

Regarding claim 9, one could interpret the distal end of the waveguide to be an end where grating 813D, 813E, or 813F resides, thus providing optical feedback.

Regarding claim 10, the second waveguide can also include a grating 813D.

Regarding claim 18, the waveguide is disclosed as single mode (see par. [0034]).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Bradley. Liu discloses the limitations shown above, but does not disclose the additional waveguides having transverse transfer coupling shown in these claims. Bradley discloses the use of additional waveguides and transverse transfer coupling therebetween. It

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would have been obvious to one skilled in the art to utilize such waveguides and coupling, so that the grating can be placed farther from the gain medium, thus allowing for processing the grating without damaging the active region, as taught by Bradley. Though the substrates are not separate (as required in some claims), the separation of previously integrated parts is merely an obvious design choice.

Claims 13-17 and 26-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu. Liu discloses the limitations shown above, but does not disclose the following.

Regarding claim 13, it is not disclosed that the device is multi-mode. However, multi-mode devices are well known in the art, and it would have been obvious to one skilled in the art to make the waveguides multi-mode by engineering design choice to achieve a desired result for an intended use in an application requiring multi-mode output.

Regarding claims 14-17 and 26-34, these particular reflectivities and features of the grating are not disclosed, however such features are known in the art. It would have been obvious to one skilled in the art to use these particular types of grating having these known features as a matter of engineering design choice to achieve a desired result for an intended use (i.e. to cause the particular amount of wanted reflection or phase shift needed for a particular application).

Regarding claims 35-36, there is not disclosed these claimed features to suppress diffraction of the grating, however it is known to do this, and it would have been obvious to one skilled in the art to include such means for suppressing the diffraction in order to force the

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grating to diffract only in a first order (rather than for example also diffracting in a second order, thus causing unwanted surface emission of light).

***Allowable Subject Matter***

Claims 37-41 are allowed. Claims 19-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. There is not taught or disclosed in the prior art a laser as claimed having the compensator and reference segments as claimed to provide feedback for wavelength locking.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (571) 272-1944. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

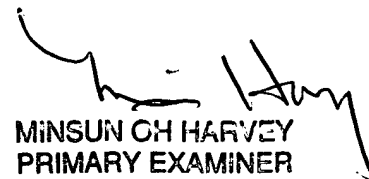
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JM

August 12, 2004



MIN SUN CH HARVEY  
PRIMARY EXAMINER